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COMMUNICATIONS

SYPHILIS IN OPHTHALMOLOGY*

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WHEN I was asked to give this Lecture, I accepted without hesitation, because I felt it was impossible to forego such an honour, but I was not so decided as to my subject.

As you know, I am not an ophthalmic surgeon, and when I looked back on the list of former Lecturers I realised my own shortcomings in comparison with these men of fame and repute.

I have, however, been Visiting Pathologist to the Birmingham and Midland Eye Hospital for many years, and from that view point I have been able to see much, if not all, of the "game."

In addition I have been associated in the study of syphilis in Birmingham and elsewhere, and I decided that perhaps you may be interested in my views and experiences of syphilis in ophthalmology. I further thought, I hope rightly, that you would prefer that I gave you for the most part my own experience, and in the main my own observations, rather than a collected mass of ideas, figures and statistics, from medical literature.

Incidence, and perhaps even type of lesion may vary in different towns and countries; what I intend to give you to-day is my observation over the past fifteen years in the town of Birmingham.

Preliminary

When one considers medicine and surgery over the past fifty years or so, it seems to me that one of the most remarkable things is the gradual but enormous growth in what one might call

* The Middlemore Lecture, September 26, 1941.

scientific medicine, as distinct from clinical medicine, and of all the advances and discoveries which have been made, surely none has exceeded in value or brilliance, the discovery of the *spirochaeta pallida*, by Schaudinn, and the application of the Bordet-Wassermann reaction early in the twentieth century.

You have only to read text-books, and articles of the past by various clinicians, to realise how very wide of the mark clinical diagnosis may be.

I well remember, more than twenty years ago, seeing a member of our own profession who had been advised by the best surgical authorities in the country to have his leg amputated through the hip joint without delay, for sarcoma. He gave a positive Wassermann reaction and is walking about on two good legs to-day. I could give you many such examples with the intention of showing that clinical observation in these days is not enough. We must have a confirmation of our suspicions if possible by a scientific test.

History, also, in a particular case is often very misleading. Many people who have syphilis are entirely ignorant of the fact, and others who know that they have been infected will deny it strenuously.

I contend that our most reliable method of diagnosis of syphilis is (apart from finding the spirochaeta in some of the acute cases) the Wassermann test or some reputable flocculation test.

I do not say that in these serological tests we have 100 per cent. reliable diagnostic results. I know that the findings appear to be sometimes incorrect, and then the clinician comes into his own again. But I do ask you to pause if your diagnosis does not agree with the Wassermann reaction in a case of suspected clinical syphilis; you may be right, but you are probably wrong.

Again, do not be misled by the so-called " weakly " positive Wassermann—I much prefer the term " doubtful "—it is not diagnostic of syphilis, but it may be of the greatest importance.

There is one other point which I hesitate to mention, but I think I must. In some laboratories the tests are not carried out in a way to give the same reliable results as in others, so that false results are obtained, which is worse than no result at all.

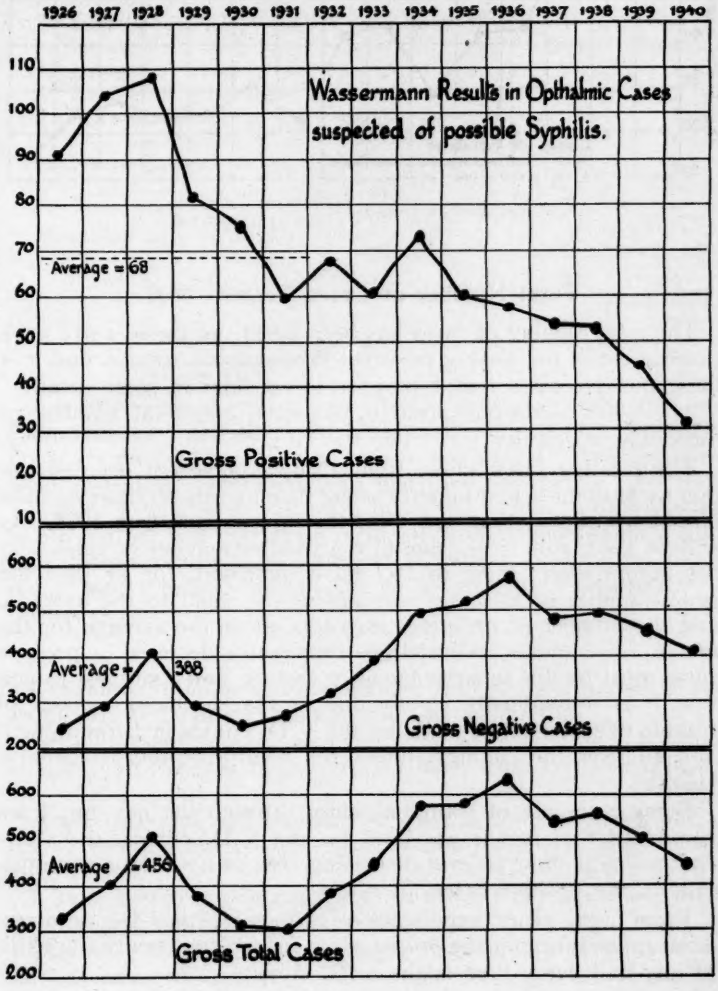
It may be advisable to have two tests—a Wassermann and a flocculation or Kahn test, done as routine. But whatever the test I ask you to remember that you are not dealing with the infallible, and that it is not difficult to have a test repeated.

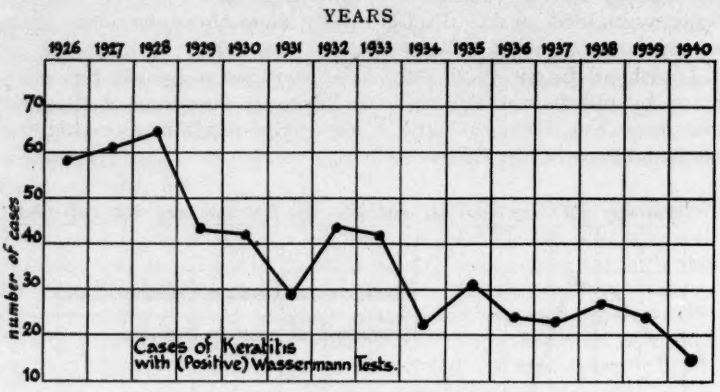
Incidence of Syphilis in the Eye Hospital

During the past fifteen years I have been asked to see practically every case suspected of the possibility of syphilis which has attended the Birmingham and Midland Eye Hospital, for the

purpose of a Wassermann test, and I propose to give you the figures obtained, and to discuss briefly some questions which arise as regards diagnosis, prognosis and treatment.

I wish at the outset to emphasise that the diagnosis has been made by ophthalmic experts—the honorary surgeons of the Birmingham Eye Hospital—and I personally disclaim any share or responsibility in the diagnosis.


1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940
Wassermann Results in Ophthalmic Cases suspected of possible Syphilis.
Average = 68
Gross Positive Cases
Average = 388
Gross Negative Cases
Average = 456
Gross Total Cases



Cases aged 16 or under { 1928 = 32 1939 = 6 / 1929 = 17 1940 = 6

Total Number of Cases Tested—6839

The total number of cases has been 6,839: of these, 1,015 have given positive (or weakly positive) Wassermann results, and it is these positive cases that I propose to consider in some detail.

The charts showing positive, negative and total number of cases, are instructive.

The positive cases show, from 1928, a persistent decrease, so that by 1940 the actual number is less than half the average number of cases, and less than one-third the figure reached in 1928. As will be seen, this is not due to the smaller number of cases sent for examination; these in fact have increased, for in 1940 the gross number of all cases was practically equal to the average, and the number of negative cases was above the average for the *fifteen years* under review. The remarkable decrease in positive cases must be due to some factor or factors, and I suggest to you that it is undoubtedly chiefly due to the enormous amount of routine offensive effort made by the V.D. clinics in Birmingham, and all over the country, under the control of the Ministry of Health.

Some cases are of course slipping through the net, but I am convinced that had it not been for the V.D. clinics, the above charts would show an ever-increasing rise, rather than a continual fall, in the positive cases.

From many years' experience of various Hospital Departments, I am quite sure that the proper place for the treatment of syphilis of any and every type is the V.D. clinic.

WASSERMANN REACTIONS IN OPHTHALMIC CASES

Analysis of 1,015 Positive Cases

		Positive	Weakly Positive
1	Gumma in orbital area	19	—
2	Scleritis	17	—
3	Keratitis	505	48
4	Iritis	93	3
5	Choroiditis. Retinitis	72	15
6	Optic atrophy	69	5
	„ neuritis...	12	7
7	Nerve Palsies	113	6
		900	84
	Miscellaneous	31	—
		931	84
	Total	1,015	

I wish to repeat what I have already indicated: that I do not claim that *every* case that gave a negative result was not syphilitic; there are no doubt a few which have not shown " Wassermann-reacting-bodies," but I contend that they are few.

Again, I look with suspicion upon the weakly positive cases, and I can tell you that those included in the above list have been considered carefully from a clinical as well as a serological standpoint, and I believe these cases to be genuine " positives."

Cases in Detail

General.—Syphilis may be divided into acute (congenital and acquired), and chronic (congenital and acquired).

At the present time one sees very little acute syphilis in ophthalmology. In the past fifteen years I have seen only one primary sore of the eyelid.

Acute iritis due to secondary syphilis is more common, but as I shall mention later, I have seen probably fifteen of these in the same period.

I have also seen one case of third-nerve palsy associated with a secondary rash.

Of course there are also the cases of secondary rash involving the lids and conjunctiva.

The very great majority of cases therefore are associated with chronic syphilis, and at the outset I wish to emphasise a very important point: it is often difficult and sometimes impossible to decide whether a particular case is of the acquired or congenital variety. Age may help, or if you have the well known signs, such as Hutchinson teeth, depressed bridge of nose, etc., or a reliable

III nerve palsy in secondary syphilis. Note papular rash of arm.

history of infection, a diagnosis may be easy; but on the other hand you may have no such indications, and I would remind you that the lesion in both congenital and acquired syphilis is basically the same, and is the result of the response of the tissues to the irritation of the spirochaete, consequently the resulting clinical conditions may be identical.

In some cases more than one site may be affected, *e.g.*, quite a number of cases of interstitial keratitis have, in addition, choroiditis, but in such cases I have taken the diagnosis as given by the Honorary Surgeon.

Secondary syphilis showing ulcerating papules of lids.

(1) Gumma in Orbital Area (19 cases)

A lump or an ulcer in any situation should make one think of the possibility of gumma. Thirty years ago gummata were seen much more frequently, and consequently thought of more often as routine: to-day, being less common, they are sometimes not thought of.

In this small number of cases the commonest has been the gummatous infiltration, often with ulceration in and around the lachrymal sac. A gumma may also cause proptosis and displacement of the globe from a gummatous periostitis of the orbit or, again, the region of the lacrymal gland is sometimes the site of the swelling.

But whether in child or adult, tumours of the orbit demand a blood examination as one of the first investigations in a differential diagnosis.

(2) Scleritis and Episcleritis (17 cases)

Here again the number of cases is small, and the process is gummatous. Apparently the condition may actually start in the sclerotic, or else it may be a spread of a cyclitis or choroiditis from beneath. I have not seen a case of the ulcerative type, but they undoubtedly occur if the condition is left untreated. The cases here reported cleared up rapidly with treatment.

Keratitis (553 cases)

The majority of cases of syphilis of the eye come under this heading, and are of the diffuse interstitial type.

You will see from the chart that the numbers have fallen from a maximum of 68 in 1928 to 15 in 1940.

It is well recognised that only a small proportion, probably 2 or 3 per cent., occur in acquired syphilis, the remaining 97 per cent. are of the congenital variety. I have never heard a good explanation of this most remarkable fact.

One must be careful of assuming that a particular case is congenital. I well remember showing a woman aged 27 years to a class of students: she had interstitial keratitis, and I said that it was almost certainly inherited. After the class the patient said, " You were wrong about the condition being inherited; I acquired syphilis six years ago from my husband."

Reliability of the Wassermann reaction in congenital syphilis. —On looking through 100 consecutive cases of congenital syphilis with keratitis at my General Hospital Clinic, I found that 85 per cent. gave a positive Wassermann reaction and 15 per cent. were negative, but on further investigation I found that of those 15 per cent. 14 had had previous anti-syphilitic treatment. The only patient who gave a negative Wassermann and had not been treated was a girl aged 20 years with active interstitial keratitis of one eye, whose mother gave a strongly positive Wassermann.

According to my reckoning the Wassermann reaction would thus be reliable in nearly 99 per cent. of the cases of syphilitic interstitial keratitis, if we exclude the treated cases.

Character of the Lesion

Much has been written on this subject; McIntosh and Fildes (*Syphilis,* 1911) and others say that the spirochaete is found in the cornea in early syphilitic keratitis.

Loewenstein (*Klin. Monatsbl. f. Augenheilk.,* August 1927) says that the uveal tract is the primary focus, and that the keratitis is secondary.

The anterior ciliary vessels have been blamed; Michel (*Ber. ophthal. Gesell., Heidelberg,* 1895) considered that the interstitial keratitis was due to a periarteritis in that region.

Allergy has also been suggested.

It would seem not improbable that any one of these suggestions may have a part in the production of this strange condition. The usual case with the positive Wassermann is probably directly due to the spirochaete; the case with the negative one may be due to the periarteritis causing consequent interference with the normal circulation around the cornea.

The case which develops following specific treatment might well be allergic.

Injury

Injury of all kinds may be the exciting cause of keratitis. During the last war I saw several soldiers in whom gas attack started interstitial keratitis in those with a positive Wassermann. I have seen many cases in which the patient has thought that dust in the eye started the condition.

Pregnancy may occasionally be a factor by its general metabolic upset.

One or both Eyes

In 1863 Jonathan Hutchinson wrote a very remarkable book, "*Diseases of the Eye and Ear consequent on Inherited Syphilis.*" He states in 91 out of 102 cases both eyes were affected. In my series of cases 43 per cent. are limited to one eye; I shall refer to this again in a moment.

Age of Onset

In Hutchinson's 102 cases the average age of onset was 10 years. In 1940 the average age of my cases was 18 years for congenital interstitial keratitis, and as will be seen on the chart only 6 were aged 16 or under.

The youngest child I have seen with this condition was one aged $1\frac{1}{2}$ years.

Other Signs of Congenital Syphilis

Again quoting Hutchinson: he says that peculiarities of teeth and physiognomy are the almost invariable concomitants of the true disease.

On looking through 100 cases I find that only about 65 per cent. show these signs, although artificial and decayed teeth may account for a number of negative findings.

Deafness also is only apparent in about 10 per cent. of my cases.

Clinical findings.—I do not propose to enlarge on clinical features; they are well known to you, so is the association of the cyclitis or iritis which generally appears to me to be present. But I would remind you that, although infiltration of the deeper layers of the cornea is usually seen, superficial types may occur, sometimes with ulceration of the corneal epithelium, and some look very much like a phlyctenular condition.

Treatment

I now come to the very important question of treatment in this type of case. It is a matter upon which I feel rather strongly, and in which I have been interested for very many years. I have noted the opinions of various authorities, and I have watched the effects of various treatments.

I have always tried to keep an open mind, but I propose to speak very frankly about my conclusions.

First, I will quote to you what Hutchinson said in 1863: After advocating the " cautious " use of mercurials and iodides, he continues, " The duration of these cases is very unequal. I have seen the corneae cleared and the attack over within two months or even less, but this is rare. More frequently from six to eight months are consumed before the corneae are restored to fair transparency."

Secondly, I read from Duke-Elder's recent text book: " No substantial progress has been made since Hutchinson's day, and little or nothing can be done to alter the course of the disease or alter its duration." Again (p. 1,967), " Interstitial keratitis is intractable to treatment with arsenicals," and on page 1,977, " local treatment should consist of frequent hot bathings or electrical heat." As a result Duke-Elder finds that the " florid " stage lasts from two to four months (p. 1,974). I will state quite definitely what I consider to be the proper and necessary treatment for these cases.

1. The immediate and prolonged use of arsenicals and bismuth.
2. The constant use of atropine.
3. The "religious" avoidance of all forms of heat applications to the eye.
4. A simple shade and the avoidance of all interference such as washing out the anterior chamber, which I have seen practised with shocking results.

Now I assume that our objectives in the treatment of interstitial keratitis are:—

1. To relieve the local condition.
2. To eradicate the general infection.

I think that few will dispute that, generally speaking, our best drugs in the treatment of syphilis are arseno-benzol and bismuth. On theoretical grounds alone therefore, one would give these drugs in congenital syphilis; but I would go further than that and say that I believe, without a shadow of a doubt, that these cases do infinitely better when they are used than without their use.

I said I should refer again to the question of *one* or *both* eyes; I contend that one eye only is affected in 43 per cent. of the cases in my series chiefly because of the treatment adopted. Had that treatment been withheld both eyes might have been affected in nearly every case.

Again, as quoted above, Duke-Elder says, "the florid stage lasts from two to four months." With treatment such as I have indicated the duration is generally 2-6 weeks. When such a period is exceeded it is nearly always due to the fact that someone has been applying hot pads, or hot bathing. In my opinion these applications of heat cause congestion—the very thing one wishes to avoid. Do you foment a gumma, or even a sprained ankle? No! Why then foment an inflamed and injured cornea?

Atropine is undoubtedly necessary but I doubt whether its use should be prolonged more than three weeks or a month.

Now I am not going to suggest that the results with arseno-benzol and bismuth are the spectacular successes which one obtains in acute syphilis; the conditions are not parallel. The minimum duration of treatment I should say is three years, and in most cases it is very considerably longer. Among other things a negative Wassermann reaction is aimed at, and I say that as long as a positive Wassermann reaction is present, some sort of specific treatment should be given.

I know from experience that it is wearisome both to the giver and to the recipient, but I am sure that it is advisable. I admit also that relapses in the other eye do take place whilst the patient is on treatment, and I suggest that they are allergic—they occur in about 2 per cent. of my cases.

Clinically I find that in cases with a negative Wassermann the cornea does not appear to clear as well under treatment as in those with a positive reaction, and it may be that in these there is a chronic sclerosis around the ciliary vessels, interfering with the normal corneal metabolism.

Clinical Results

The clinical results obtained will, in my opinion, depend very much on the early treatment, and on the nature of the treatment. Default from treatment may be responsible for relapse. I say again that hot pads and the like are conducive to permanent opacity.

But looking through case sheets where the patient has been under treatment and observation for 10 or 15 years, the figures as a whole show:

Obvious permanent opacity, 8 per cent.

Haze of cornea, or slight opacity, only seen on close examination, 37 per cent.

Macroscopically clear corneae, 55 per cent.

The Uveal Tract

The spirochaete in chronic syphilis seems to have a particular liking for mesoblastic structures and, as one would expect, lesions of the vascular coat of the eye occur frequently. I have already mentioned that many cases of interstitial keratitis are associated with iritis and choroiditis, but I am not including those cases here.

Iritis (including cyclitis)—96 cases

Although iritis in young children (under one year) caused by congenital syphilis appears to have been fairly common in Hutchinson's day, I cannot remember a single case referred to me in the past 15 years. The occasional case has been seen in older children due to congenital syphilis (the youngest in this series was 6).

The great majority of cases are in older patients, and are of the acquired type.

I read in Burke's *Venereal Diseases*, 1940, that: "Syphilis is the commonest cause of iritis—70 per cent. of all cases." That is a statement with which I cannot agree; for example, in 1939 out of 67 cases of iritis tested only 5 gave a positive Wassermann, and I think that is a fair picture of the incidence of syphilis in cases of iritis.

Of the 96 cases, only 15 have been associated, as far as I can gather, with acute syphilis, in which one may get the very distinctive condyloma iris, together with the secondary syphilitic rash.

The majority of cases have nothing to distinguish them clinically, and my conviction is that a Wassermann should be done in every case. Erle Moore (*Modern Treatment of Syphilis*, page 27) describes a fulminating type of case. He says "it may be so fulminating as to destroy vision within a short time." I have never seen this type of case, neither have my colleagues here, from whom I have enquired.

No doubt early treatment of secondary syphilis will have a marked effect in the incidence of iritis. If treatment is delayed

for months through, perhaps, lack of diagnosis, as is sometimes the case, then iritis is likely to be commoner.

Again it is difficult to draw a sharp line between late secondary, early tertiary disease, and the half-treated relapsing case.

As regards treatment, I feel surely that there can be no doubt that syphilitic iritis is best treated on the lines of a syphilitic infection—with routine arsenic and bismuth.

The pupil should, I believe, be dilated with atropine, and in my experience the results in all cases are excellent; always providing that dense synechiae have not been allowed to form through delayed treatment.

Choroido-retinitis (87 cases)

Going further back in the tract it is difficult to separate choroiditis from retinitis. I have therefore included the choroid and retina together.

Here is a picture of the choroid and retina from a case of congenital syphilis. You will see the massive scarring of the choroid with formation of dense fibrous tissue, and the thin, grossly degenerated retina.

Eighty-seven no doubt is an understatement of the actual number of cases. As I have already said, this condition is often seen with interstitial keratitis, and it is also seen with some of the cases of optic atrophy.

I personally have never seen a case of choroiditis or retinitis associated with acute syphilis, and I must confess at once that I am quite unable to say definitely what proportion of the cases I now refer to is acquired. I am convinced that the great majority are congenital. For example, I saw a man of 60 recently, who was diagnosed as tertiary syphilis on account of a choroido-retinitis. He was indignant and told me that he knew that he was seen as a child of eight for trouble " at the back of his eye," and that he never had had syphilis of the acquired type. It seems to me that most of these cases are seen in the degenerative state, when some healing has taken place long after the acute invasion has subsided.

I assume that the pepper and salt diffuse type is practically always congenital and that the patchy type, in which one sees large or small pigmented areas, or, on the contrary, white areas of degeneration, may be either congenital or acquired.

I have no doubt that in not a few cases of choroido-retinitis a negative Wassermann has been obtained where the actual infection has died out or been killed. We are then dealing with a post-syphilitic degeneration.

There are, however, a number of cases seen in which, I am told, there is active disease, and here it is of first importance to the patient to make a correct diagnosis and to stop the progress of the trouble. From the courteous co-operation of my colleagues, who have examined many of these cases for me during and after treatment, I am sure that much can be done by proper treatment to limit the extension of damage, and, as before, that treatment is arsenic and bismuth, over a prolonged period—not simply hope and a few bottles of mercury and iodide.

Again, I am told by the ophthalmologist that in the majority of cases it is impossible to say clinically that a particular case is, or is not, syphilitic. For example, some will say that the clinical diagnosis of retinitis pigmentosa can be made with certainty. Others are not so sure when differentiating between that condition and syphilitic choroido-retinitis. I think that the wise clinician will rely on the Wassermann test in such cases.

Nerve Lesions

Optic atrophy 74: optic neuritis 19: nerve palsies (including Argyll Robertson pupils) 119.

These lesions must, I think, be regarded as part and parcel of an affection of the central nervous system, for with the exception of a few cases of nerves involved in a gummatous process in the orbit, and some cases of retinitis, they are practically all part of gross involvement of syphilis of the brain and spinal cord.

Here is a table of 100 consecutive cases of cerebro-spinal syphilis which attended my Clinic at the General Hospital, with the resulting blood and spinal fluid tests.

Wassermann Tests in Cerebro-Spinal Syphilis (100 cases)

Pos. in blood and Pos. in C.S.F.	*Neg. in blood and Pos. in C.S.F.*	*Pos. in blood and Neg. in C.S.F.*	*Neg. in blood and Neg. in C.S.F.*
80	6	8	6

Of the six cases which were negative in blood and C.S.F., four were known to have had considerable anti-syphilitic treatment. The two with complete negative results, not definitely known to have had treatment, were cases of locomotor ataxy aged 67 and 68. It is highly probable that both had had treatment, but, even if they had not, the active disease may have died out, leaving the post-syphilitic symptoms and signs of clinical tabes. In any event, such results show the extraordinary reliability of the test, and the necessity for an investigation of both blood and spinal

fluid. I have to confess that this has not always been done in cases which show a negative Wassermann in the blood at the Eye Hospital.

Early Infection

I would ask you to consider what happens when a patient is infected with syphilis.

In the primary stage alone in from one-fifth to one-third of the cases, the cerebro-spinal fluid shows pathological changes.

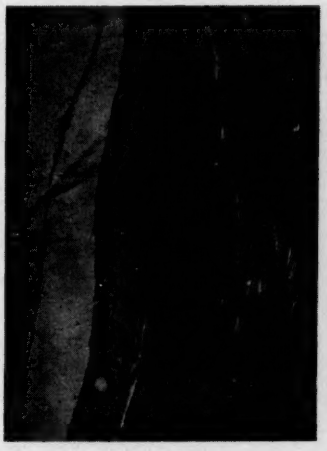
In the secondary stage more than half the cases show pathological abnormality in the fluid. With proper treatment this condition subsides in practically every case. Unfortunately every case does not get proper treatment, and it is the " half-treated " case which develops neuro-syphilis.

We must look very broadly at the invasion of the central nervous system. I have already noted the attraction of the spirochaete for vascular tissue. It also appears to find a comfortable home in the meninges.

Nervous syphilis might indeed be divided into *vascular* and *meningeal*. The patient who has a " stroke " due to syphilis is typical of the vascular type, which has started as a periarteritis.

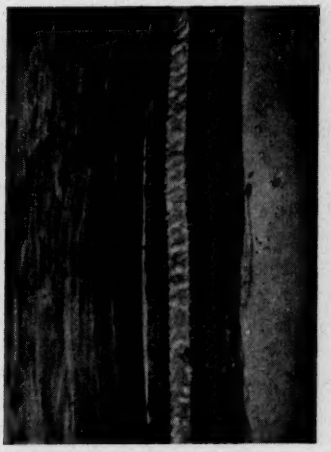
May not the brain in general paralysis be regarded in the first place as a meningeal and a diffuse vascular lesion of the smaller

A



Syphilitic choroido-retinitis showing gross degeneration of retina and choroid.

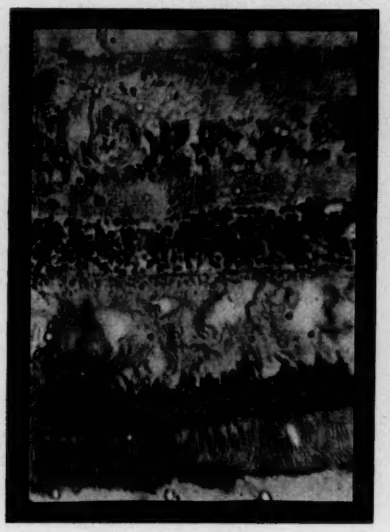
B



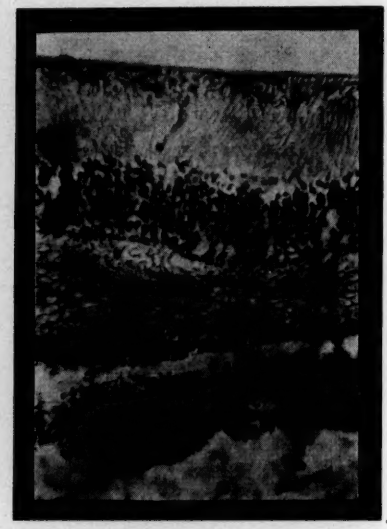
Normal.

vessels, spread over a large area of the cerebral cortex, and giving rise to a gross cerebral degeneration?

The case of locomotor ataxy in my opinion starts as a syphilitic inflammation around the posterior nerve roots, which literally strangles the nerve fibres. Here is a slide which shows the early condition. You will see the gross round-celled infiltration around the posterior nerve roots in the pia-mater and the subarachnoid



Retina normal.



Retina. Primary optic atrophy.

space. Later on the active process may be gone, leaving only the subsequent scarring and degeneration.

Much the same condition occurs in the optic nerve.

Igersheimer (*Deutsch. Med. Wochen.*, 1926, Vol. 52) states that every case of syphilitic primary optic atrophy shows round-celled infiltration around the nerve.

"*Primary optic atrophy*" is a remarkable condition. I should like you to look at a section of the retina from such a case. You will see that the nerve cell layer is practically non-existent. It would seem that this condition certainly has not started as an inflammatory area in the retina. I cannot accept that this nerve cell atrophy is toxic, and to say that one gets a peculiar proximal and distal degeneration in the optic tract, as distinct from other nerve tissues in disease, appears to me to be rather far-fetched.

The facts which appeal to me are, that in the optic nerve, just as in the posterior nerve roots of the cord in tabes, we have a slow strangulation of the nerve and vessels in the nerve, combined with an arteritis causing perivascular scarring and thickening with a resulting atrophy of the nerve cells in the retina, leading to atrophy of the fibres as shown at the disc; in fact, is the atrophy of the disc really primary at all?'

Syphilitic meningitis around posterior nerve roots.

I suppose that optic neuritis occurs in some cases where it is not recognised, and that a secondary optic atrophy results, but the number of cases of optic neuritis (19) is certainly small.

These optic atrophy cases may of course occur either in acquired or congenital syphilis, and in association with the latter consecutive atrophy associated with a choroido-retinitis appears to be fairly common.

Prognosis in Optic Atrophy

If one reads records of expectation, you will be struck with the dreadful prospect in store for the case of primary optic atrophy. Lehrfeld and Gross (*Arch. of Ophthal.*, 1937) say that 100 per cent. are blind within eight years whatever the treatment.

If you take the advanced case, this may be true, but I would urge the investigation of every case with even a suspicion of a pale disc. I know that opinions may differ in expert circles as

to whether a disc is normal, and in those relatively early cases I am sure that, if syphilis is the cause, progress of the degeneration can be hindered or stopped. You cannot expect the old case with gross destruction of cells and nerve fibres to regenerate.

Ocular Palsies (119 cases)

These palsies, both internal and external, are often due to syphilis.

Of the internal variety, the commonest by far is the Argyll Robertson pupil, which, I should imagine, is nearly always due to syphilis. There is considerable difference of opinion as to the site of this common lesion, and I have no original ideas upon the matter, but I do know that the " myotonic pupil," accompanied with the loss of other reflexes is very difficult to distinguish, and that a blood and spinal fluid test is essential in all such cases.

I have said that the Argyll Robertson pupil is *nearly* always due to syphilis. I believe that statement to be true and I believe that one meets with the occasional case that is not caused by syphilis.

I saw a young woman some months ago with typical Argyll Robertson pupils. Her blood and spinal fluid gave negative Wassermann reactions. The only history she gave was that at eight years of age she had St. Vitus's Dance. I regard St. Vitus's Dance as a meningitis, caused by the streptococcus of rheumatic fever. I have seen sections of the brain from such cases.

After all, these Argyll Robertson pupils are the result of an inflammatory condition—a meningitis—and I suggest that occasionally conditions other than syphilis may be the causal factor, for just as the lesions caused by syphilis may simulate other pathological conditions, so other infective processes may simulate those lesions found in syphilis.

Total internal ophthalmoplegia is much less common—as far as I can estimate, less than 1 per cent. of all cases—and I should say that syphilis is the most likely cause of such a condition, the lesion probably being in the third nerve nucleus.

Extra-Ocular Palsies

Looking through 50 consecutive cases of this type I find that:

the third nerve lesions are seen in 68 per cent. of cases;
the fourth nerve lesions are seen in 8 per cent. of cases;
the sixth nerve lesions are seen in 24 per cent. of cases.

Syphilis appears to me to be the commonest cause of these palsies, and a gummatous infiltration of the meninges at the base of the brain seems to be the commonest site of the lesion.

What I should like to emphasise here, is the need for early treatment. I have seen cases left for weeks or months without proper specific treatment. The longer the delay, the less the chance of permanent recovery.

Here is a picture of a patient with third nerve palsy due to syphilis. Her blood gave a positive Wassermann, and her C.S.F. gave a positive Wassermann with 84 cells per c.m.m. With active treatment the recovery was rapid. She has been under observation

Condyloma iris. From a case of secondary syphilis.

for seven years and for the past five years her blood and spinal fluid have been consistently negative for pathological tests. Since treatment she has had two normal healthy children and has herself been perfectly well. The only abnormality which I can see is a slight inequality of the pupils.

Miscellaneous Cases

I should like to make a few observations upon these cases.

First I am surprised that we do not see cataract and glaucoma more often caused by syphilis. These two conditions, it seems to

me, ought to be far more frequently caused by syphilis, and although a fair number of cases have been tested, the number of positive results in both these conditions has been very small, even if we include those cases which follow an obvious kerato-iritis.

Retro-bulbar neuritis as a definite entity also appears to be only infrequently caused by syphilis, but I think that there is no doubt that the spirochaete is responsible for a few cases.

Vitreous opacities, arteriosclerosis, hemianopia, nystagmus and thrombosis of the retinal vessels, are all sometimes associated with syphilis, and have given a few positive Wassermann results.

Treatment

This is not the place, nor is there time for a detailed statement on the treatment of syphilis. I should, however, like to make a few general remarks on the subject.

I think that all authorities agree that every case of syphilis in the acute (primary and secondary) stage should receive arsenobenzol compounds in conjunction with bismuth metal or salts.

There is naturally some difference of opinion as regards dosage, duration, and as to whether the drugs shall be given continuously, intermittently or concurrently.

Briefly the treatment I am adopting at the present time is shown in this table :—

COURSE OF TREATMENT GIVEN TO PRIMARY AND SECONDARY SYPHILIS

WEEKS		
1	Neoarsphenamine 0·6 gm. or 0·45 gm.	
	Neoarsphenamine 0·3 gm. or 0·45 gm.	Bismuth 0·2 gm.
2	Neoarsphenamine 0·45 gm.	Bismuth 0·2 gm.
3	Neoarsphenamine 0·45 gm.	Bismuth 0·2 gm.
4	Neoarsphenamine 0·45 gm.	Bismuth 0·2 gm.
5	Neoarsphenamine 0·45 gm.	Bismuth 0·2 gm.
6	Neoarsphenamine 0·45 gm.	Bismuth 0·2 gm.
7	Neoarsphenamine 0·45 gm.	Bismuth 0·2 gm.
8	Neoarsphenamine 0.45 gm.	Bismuth 0·2 gm.
9	Confection of sulphur one drachm o.m.	
10	Blood W.R.	
11 12	Pot. iodide 5 grains t.d.s.	

Urine to be tested for *Urobilinogen* each week before injection.

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13 to 18	6 weekly injections neoarsphenamine 0·45 gm. with 6 bismuths.
19	Confection of sulphur one drachm o.m.
20	Blood W.R.

WEEKS	
21 to 22	Pot. iodide 5 grains t.d.s.
23 to 28	6 weekly injections of neoarsphenamine 0·45 gm. with 6 bismuths.
29	Confection of sulphur one drachm o.m.
30	Blood W.R.
31 to 32	Pot. iodide 5 grains t.d.s.
33 to 38	6 weekly injections of neoarsphenamine 0·45 gm. with 6 bismuths.
39	Confection of sulphur one drachm o.m.
40	Blood W.R.
41 to 42	Pot. iodide 5 grains t.d.s.
43 to 48	6 weekly injections of neoarsphenamine 0·45 gm. with 6 bismuths
49	Confection of sulphur one drachm o.m.
50	Blood W.R.
51 to 52	Pot. iodide 5 grains t.d.s.
53 to 58	6 weekly injections of neoarsphenamine 0·45 gm. with 6 bismuths
59	C.S.F.

For the rest of the second year a blood test each *month*, provided that the previous two tests at least have been *negative*, and that the treatment has been satisfactory.

Patients are asked to attend for observation over a period of two years, after completion of treatment as a minimum.

Patients over 50 years—Dosage of neoarsphenamine *not* to exceed 0·3 gms.

You will see that it is a concurrent, intermittent course of treatment, lasting some 60 weeks, and the main items are as shewn on the chart. I should like to emphasise here that intervals of more than a month without arsenic and bismuth should in my opinion be avoided in the treatment of early syphilis.

I believe that with such treatment in acute syphilis, somewhere in the region of 100 per cent. cures may be expected, provided that the patient gets and can tolerate such a course.

As I have already pointed out, most of the cases seen in ophthalmology are chronic syphilis, and here we have a very different proposition from the acute cases. The patient may be elderly, or if young in years, his tissues may be "elderly" and unable to tolerate these toxic drugs: the spirochaete is probably embedded in granulation tissue and not easy of access, and almost certainly permanent damage has been done, and tissues such as nerve cells may have been destroyed and cannot be replaced. Treatment will have to be very much prolonged and dosage perhaps modified, but I am sure that the chronic case, no less than the acute, should receive his best chance with arsenic and bismuth on the lines of the course for acute syphilis, but prolonged for three or more years.

If the meninges show evidence of chronic inflammation, the routine may be altered.

In non-meningeal cases, the drug in general use is neoarsphenamine—a trivalent compound. I have seen a large number of cases, where there has been syphilitic meningitis, do extremely well with this drug, but I think that the results are probably better in chronic cerebro-spinal syphilis with the pentavalent arsenical—tryparsamide. This drug, which can be given in large doses, contains 24·57 per cent. arsenic. I find that patients tolerate 1 gm. intravenously once a week, combined with bismuth intramuscularly, very well indeed. I have seen none of the visual disturbances which have been recorded (*e.g.*, Moore Mod. treat. Syph., page 104-5) when larger doses such as 3 grammes are used, and I firmly believe that the clinical and serological results are as good with 1 gramme as with 3 grammes.

Iodides.—Iodides by mouth may be given between courses, but I see no advantage in very large doses. On the contrary, they are apt to make the patient depressed and miserable.

I have tried iodides as routine intravenously without any striking success.

Fever therapy, whether by malaria or with a hypertherm machine, has been strongly recommended, and I can only repeat what I have said before, that my experience is limited, and although some cases do seem to do well in the hands of experts, I have seen many others with which I have not been impressed, and I should doubt whether, on the whole, there is any advantage over ordinary methods with arsenical compounds and bismuth.

I have already said that, in my opinion, three years is the minimum duration for the treatment of the chronic syphilitic, and in spite of contrary opinion, I firmly believe that the patient who retains a positive Wassermann reaction in blood and spinal fluid should be kept under some sort of specific treatment, if necessary for the rest of his life.

Relations

There is one last point which I should like to make. In dealing with the congenital syphilitic you have not discharged your duty when you have treated him. His parents and brothers and sisters ought to be tested and if necessary treated.

Fourteen years ago I treated a child for interstitial keratitis. I advised the doctor that the mother's blood ought to be tested. It was not done: I saw her this year—she now has an aortic aneurysm. There is little doubt in my mind that such a tragedy could have been avoided quite easily. And, as with the congenital, so with the acquired. The wife or any other contact of acquired syphilis ought to be considered, and not left to rot for fear of a social or family trouble. I know the difficulties, but I also know that they ought to be faced.

The Future

War brings many horrors in its train; not the least of these is an increase in syphilis.

I indicated at the outset that syphilis had shown a definite annual decline in the years preceding the present war. I regret that the number of new acute cases is now beginning to show an alarming increase; this will not be seen in ophthalmology until later on, but unless the acute cases are properly treated it will surely occur, it may be not for ten or fifteen years, when the congenital syphilitic children reach puberty or the half treated cases arrive with lesions of the central nervous system.

CHORIO-RETINITIS JUXTA-PAPILLARIS (E. JENSEN)*

BY

DR. R. G. POSTHUMUS

HAARLEM

THE above-mentioned affection has of late years been brought comparatively little to the notice of the readers of great ophthalmological periodicals, though its syndrome is not yet completely known to its full extent and in all its details. This is apparent from the mere fact that besides the one mentioned above no less than three other names have been suggested, on the assumption that these names give a better description of the said syndrome. Thus we can also speak of chorio-retinitis para-papillaris of

* Received for publication, 1939.

Blessig, neuro-fibrillitis retinae of van der Hoeve and finally of neuritis retinae of Zeeman. Rönne rightly wrote in 1915, " Unzweifelhaft ist die Klinik dieser Krankheitsform bei weitem nicht ausdebatiert." In the main it is a matter of three points requiring further elucidation, viz. the aetiology, the portal of entry and the primary site of the inflammation. The difficulty of approaching this syndrome more closely lies in the fact that no pathologico-anatomical material is available, because such eyes need not be enucleated as, with very few exceptions, the prognosis of the disease is favourable. Favourable with respect to sight, but nevertheless this form of inflammation may result in big patches lacking from the field of vision after cicatrization of the focus (foci). These defects of the visual fields are among the most characteristic manifestations of the affection, for the rest it resembles an ordinary chorio-retinitis and according to some investigators it is identical with this. The fact that in many arbitrary choroidal foci the perimeter research is not or cannot be rightly performed owing to the turbid media, is probably the cause that these defects are not much more frequently met with in all kinds of chorio-retinitis.

Originally the syndrome as to its fundus changes has been described under the name given to it by the first investigator, who looked upon it as a special change, *viz.*, chorio-retinitis juxta-papillaris, in which the foci lay beside or leant against the papilla of the optic nerve. After the communications made by Jensen there followed others in which there were also described foci which had led to radial or arched scotomata, which foci were more, sometimes even considerably more, peripherally situated. Thus Blessig suggested the name para-papillaris. In all these syndromes stress was always laid on the second part of the name chorio-retinitis, *i.e.*, the retinitis.

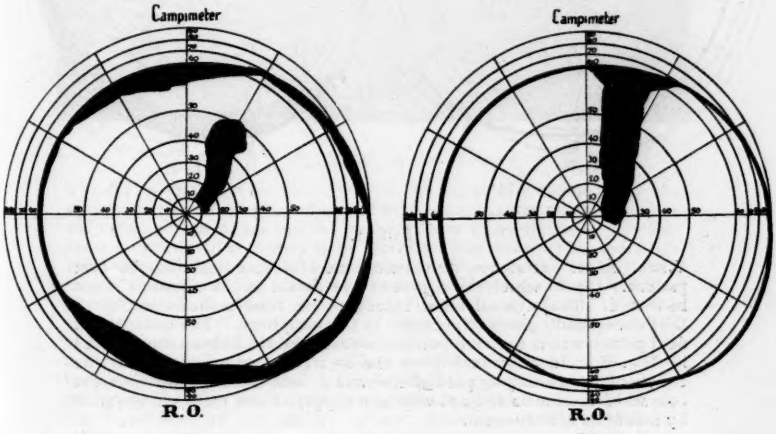
Van der Hoeve proposed, however, to change the name into neuro-fibrillitis retinae, by which he indicated that the cause did not lie in the vessels of the retina, as was originally assumed, but in the nervous fibres. According to him there was no question of a lesion caused by compression of a vessel secondarily causing a nutritional derangement in a special area of the retina, which bad nutrition gave rise to derangements far outside the area of the focus proper (Jensen, Fleischer), but it was an affection of certain fibres situated within a sharply circumscribed area. So it should not be looked upon as a retinal ischaemia, a retinal infarction, which the syndrome also resembled far less in its clinical symptoms, but rather as an interruption of the irritability of nervous fibres because of an inflammation. The same idea was kept in view, albeit to a somewhat wider extent, by Zeeman, in using the name neuritis retinae.

In addition to cases from personal observation, I was also, owing to Prof. Zeeman's kindness, provided with data about some twenty patients from the Amsterdam clinic, see below.

For the sake of convenience I have left out additional and less important facts and brought the chief data together in one table*, so that one would be able to survey at a glance the most important features in their order.

In connection with the above-mentioned cases I wish to go a little farther into these things. First of all the question should be put whether the primary site of the disease may not be found in the choroids or in both posterior sclerotics, as Wagenmann, Gilberts, Loewenstein, Schieck and Rönne have thought, among others. With regard to this Schieck draws attention to the fact that the irido-cyclitis often attending it, stamps the disease as an ordinary uveitis. To this the objection may be raised that in the large number of cases of iritis, respectively irido-cyclitis, met with in the larger clinics, the combination with a single circumscribed fundus-focus and corresponding defect of the visual field (Fig. 1), is a comparative (rather great) rarity, so that by this combination a separate stamp is put on the cases; and in the symptoms just mentioned we may not in the least see an ordinary, frequently occurring, complication of irido-cyclitis. On the other hand one would sooner infer from the fact that the combination of a solitary fundus-focus with one of the above-mentioned defects of the visual field not seldom shows a sign of cyclitis (turbidity of the vitreous humour in 19 out of 22 patients) that the first-mentioned symptoms

* This table is drawn up in Dutch. Under present conditions we regret that it is not possible to reproduce it—EDITORS.



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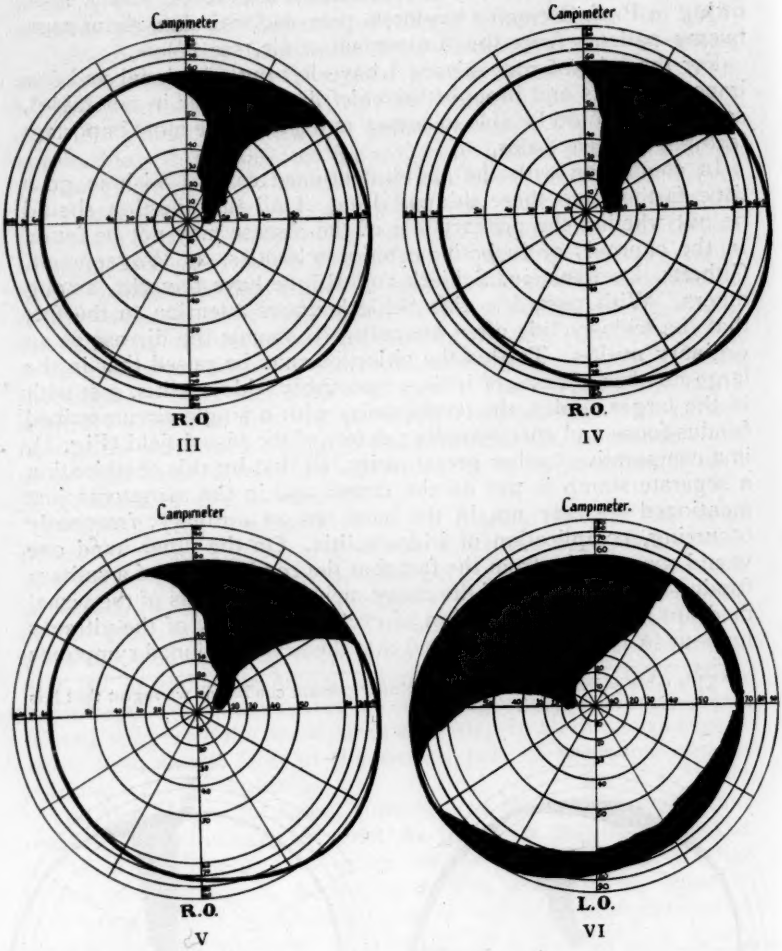


FIG. 1.

Visual fields. First five representations of visual fields of the first patient. (A) In which the course of the defect of the visual field can be traced. These visual fields belong to the fundus shown in Fig. 2 Distinct spreading from the centre to the periphery. The sixth visual field pertains to the second patient, whose fundus has been represented in Fig. 3. In all visual fields the fact becomes manifest that the course of the destroyed part of the visual field is linked up with the course of the fibrils and not with the supply of the region in question by a definite blood-vessel.

not too seldom seem to lead to irido-cyclitis. This supposition is obvious also for the reason that distinct symptoms of cyclitis in the beginning were lacking in some of our patients and only manifested themselves later on (patients N and O). Besides the number of cases of secondary iritis in affections of the posterior half of the globe is rather great. We see it in detachments of the retina, in tumour necroses, and we have been well enough acquainted with this development since Fuchs's investigations.

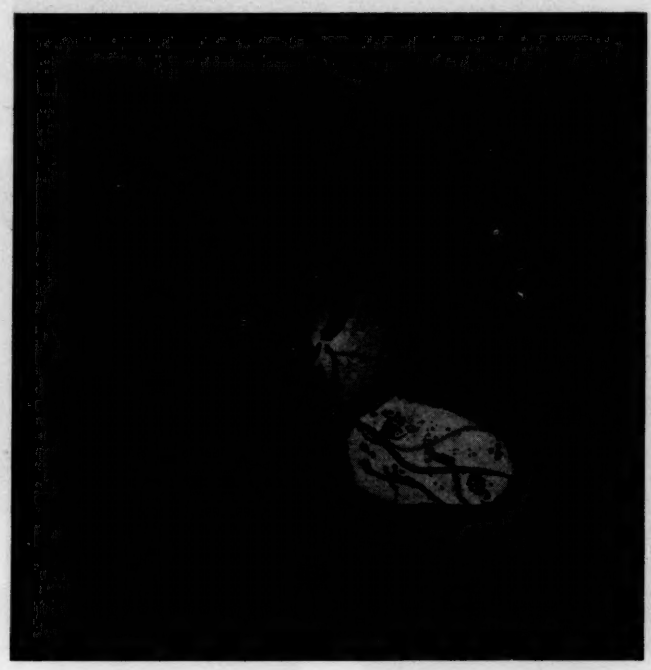


FIG. 2.

Fundus of the first patient. (A) In the focus blood-vessels of the choroid are to be seen as indicative of the fact that the destruction has only affected the retina and the pigment-layer with superficial choroid-layer. Besides it is clearly to be seen from the colour that more has been saved than the chalk-white sclera. Through the focus runs a retinal vessel showing no changes except a few slight haemorrhages situated beside the vessel, just outside the focus. No turbidity of the vitreous humour of any importance. Fundus further normal, with the exception of a small old focus not to be seen in the picture, which is more peripherally situated, very slight and also rather superficial. This focus is older than the one situated beside the papilla and might be a primary affection; more probably, however, a process originated via the blood-flow at an earlier period, perhaps through the same aetiological factor

Consequently the association of symptoms in the choroid, the iris and the ciliary body can certainly not be alleged as an argument in favour of the origin of the affection as a primary uveitis. This does not at all preclude, however, that the process may primarily be a case of choroiditis. The distinct changes in the choroids, which always remain behind after cure, at first made

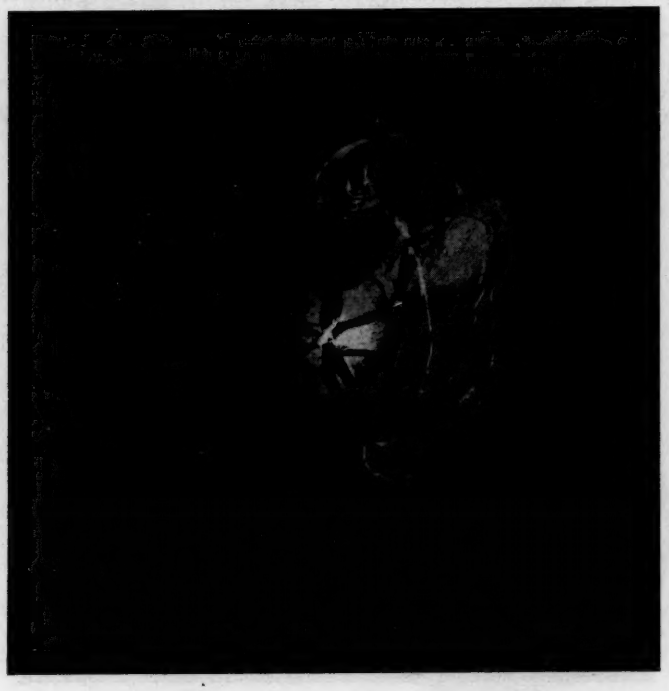
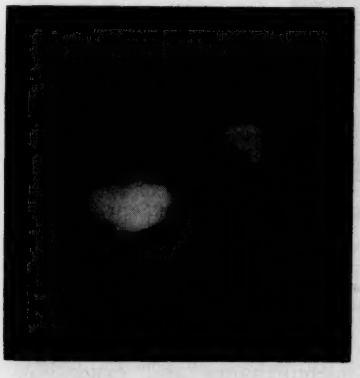


FIG. 3.

Fundus of the second patient. (B) A deeper focus, in the centre reaching down to the sclera, with a truncated blood-vessel on its border, becoming somewhat thinner there, but afterwards resuming its normal size. This phenomenon has been described before. In front of the focus 8 D. inwardly, consequently about 2 and two thirds mm. more towards the centre, a sausage-shaped turbidity in the vitreous humour, remainder of the turbidity of the vitreous humour originated on that spot, which at first withdrew the whole fundus-syndrome from observation, so that at the time no diagnosis could be drawn up, respectively no visual field be obtained. The extension both inward and outward and the greater defect in the field of vision correspond with one another, also when compared with the other case without turbidity of the vitreous humour, shallower focus and a smaller defect in the visual field.

this supposition seem quite acceptable. In proportion to the violence of the process only the inner layers or the entire thickness of the choroid coat were supposed to be affected (Figs. 2 and 3).

Now in primary choroiditis an affection of the outer layers of the retina, of the percipient elements, is to be expected in the first place, however; and, indeed, in choroiditis one sees cases of scotoma pointing to this. In the affection described here the shape of the scotomata indicates, however, an early impairment of the nervous fibres, so that in the first place one must think of a disease of the retina. The syndrome described here, on the other hand, does not in the least resemble a typical retinitis of the kind well-known to us in diabetes, uraemia, and hypertension (Fig. 4). Neither does it look like the cases of retinitis attending infections,



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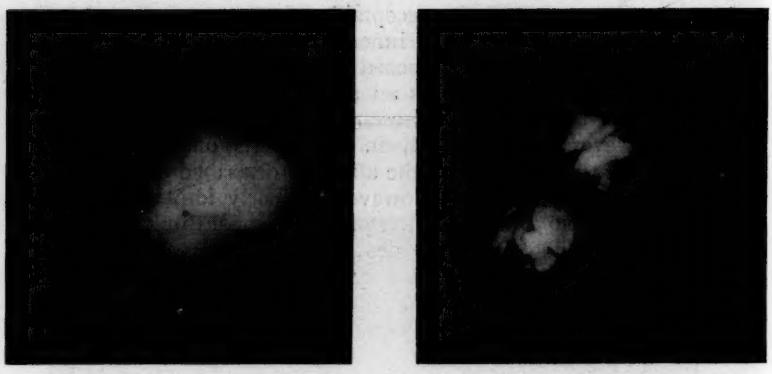

V VI

FIG. 4

Fundus-photograph. I. Fundus-syndrome of patient D. Fresh focus with veiled vessels, papilla also seen to be locally blurred. II. Fundus-photograph of patient G. Juxta-papillary focus. Old para-papillary focus with close to it a new recurrence.
III and IV. Two photographs taken a month after each other. Old para-papillary foci. of which one large one, quite atrophic, by the side of it a recurrence, on the first photograph fresh, with apparently thinner vessels; on the other photograph atrophy already beginning on the border.
V. Fundus of patient M. Large, fresh, parapapillary focus; blood-vessels for a part completely veiled, papilla also slightly blurred.
VI. Same fundus, after three years a small local recidivism in the old focus. Vessels taken up again into the inflammatory mass.

sepsis and diseases of the blood. Particularly there are as a rule lacking the multiple diapedetic haemorrhages and exudations which in the said affections are always met with between the nuclear layers and elsewhere in the retina. There are also lacking here the varicose nerve fibres and their ganglionic degeneration, which by their situation along and over and under the retinal vessels sometimes makes one suppose a degenerative process in the layer of the nerve fibres. The differences mentioned give no ground, however, for the rejection of a localization in the retina; at most it may be inferred from this that the diffuse and the diapedetic, haemorrhagic, angiospastic or toxic character of the said retinitides is lacking, and point to the solitary and more exudative or inflammatory character of the focus (*Cf.* Fig. 4). There is a striking resemblance between this ophthalmoscopical syndrome and the fundus-syndrome one may meet with after a perforating lesion (Fig. 5), in which an iron-splinter has hit the retina close to the papillary border and has infected the eye; here, too, there is exudation on and in the retina, attended with the loss of a sector of the visual field as a consequence of the cutting through

of a bundle of nerve fibres. Formerly the defect in the visual field in this case was sometimes ascribed to interrupted circulation in the quadrant in question; the visible symptoms of such a disturbance, *i.e.*, stricture of the arteries and dilatation of the veins, haemorrhages and exudations, afterwards collaterals, are always lacking here. The shape of the defects in the visual field in case of interrupted circulation is also different as a rule. In contradistinction to this the defects in the disease discussed here perfectly resemble the missing parts in the field of vision after lesions in several quadrants. As to the course of the nerve fibres in the retina and optic nerve I would refer to the experimental investigations of Sjaaff and Zeeman and the literature mentioned by

FIG. 5.

Fundus-photograph of a patient with lesion caused by iron. The little lump is situated para-to juxta-papillarily and has formed an exudation. Thus the syndrome of the same inflammation arose in quite another way. This process also perimetrically gave the syndrome of the disease of Jensen.

them, as well as to the discussions held between van der Hoeve and Igersheimer. On accurately inspecting the series of photographs of the visual field of our first patient, one sees that destruction arises from the centre to the periphery in centrifugal direction; this observation seems to indicate that also in man there is some system in the arrangement of the nerve fibres from different areas of the retina.

About the aetiology, opinions also greatly differ. Gilbert believes the cause is not known with certainty. Köhne ascribes it to influenza, Schertlin and A. Loewenstein to tuberculosis, Pavia to lues (combined with abuse of alcohol and tobacco), Higuchi to tuberculosis, Tristaino is of opinion that the cause often lies in the latter disease. Groes-Petersen also looks upon lues as one of the causes. Igersheimer, without making use of the name of Jensen, describes a typical case having lues as its cause, Wolff met with a case with empyema of the jaw-cavity, Leber already at an earlier time in the pre-Jensen days described a case in agreement with the description given here of a woman with a pulmonary affection.

Wilmer looks upon its origin in tonsils or secondary cavities as possible, Fleischer thinks of multiple sclerosis. Zeeman has described a case of distinctly luetic origin, but points out that in looking for aetiological factors it will be useful to think of the analogies and seeming relationship between this change, which he would like to call neuritis retinae, and neuritis optica.* In our cases a cause can mostly not be given with certainty; sometimes one would be inclined to think of a focal infection on the ground of affections of the teeth; in a few cases a slight trace of tuberculosis can be discerned, even though it be at a far distance. Whether pregnancy may lessen the resistance owing to which the disease may come into being, is perhaps demonstrable in two cases. In none of the cases was there any indication of multiple sclerosis, to which special attention has been given. The assertion of Fleischer, that the sclerosis and plaques are of importance in this syndrome, finds no support in our cases. For the rest it is not known either whether people with whom multiple sclerosis was diagnosed with certainty, suffered from this ocular affection in a much greater measure or even in a somewhat more considerable way. For that matter the whole neuro-trophic character of the virus or of the causation cannot without more proof be accepted as certain.

One is rather inclined here to look for an analogy with a perivascular affection of the lymphatic vessels. That the retinal vessels are of importance in spreading the causation is quite acceptable. The occurrence of one or more vessels in or near every focus and the origin in a small number of cases of a few localized haemorrhages, give rise to more than a supposition in this direction. That the vessel itself should be the cause and that consequently the focus should come into being *via* the diseased vascular wall is not altogether incontestable; considerable haemorrhages, even more than a few punctiform small bleedings and that only in a limited number of cases are lacking. Also the distribution by means of the blood flow would rather be expected in places with slow flow, in the final arteries and in places where the vessels bend acutely or are compressed, and surely in the last place in the large and extensive vessels close to the papilla. Also the inclination to recidivism, which we see more in perivascular affections (I am thinking of recurring juvenile haemorrhages of the vitreous humour), and just as in these the apparently benign character of the affection itself as to cure and destruction (for with the latter the haemorrhage is the danger, as we know, not the affection itself) remind us more of the surroundings of a vessel than of the innermost vascular layers. Finally all typical dissemination is also lacking; seldom is there more than one focus in a fresh condition.

* *Arch. of Ophthal.*, Vol. CVI, p. 4

Notwithstanding all this, in default of any anatomical substratum, in but three of our cases of periphlebitis, this conception is not more than a hypothesis on acceptable grounds. Besides such a periphlebitis may be secondary just as well as primary.

Further it should be kept in mind that the whole lymph-flow through the retina is far from completely known as yet. Aetiologically it may, as it is, be of importance that the affection arises exclusively at a rather young age, at least for the first time. At the first attack the age lies between 13 and 33, perhaps a period of increased susceptibility. In one of our patients the disease probably took place before birth as an inflammation having the same cause, which in this child (patient J), seeing the occurrence of lupus and tuberculosis in the father's family, might have been tuberculous.

There were two pregnant women among our patients, one with dysmenorrhea and an infantile uterus and one with hereditary brachyphalangia on the father's side. Slight indications for tuberculosis were also met with in a few other patients.

P. Sweating, lymphomata, catarrh of the lung apices; uncle died of tuberculosis.

Q. Father tuberculous.

R. Very strong reaction of von Pirquet, mother tuberculous uveitis.

A. Family-anamnesis suspect, von Pirquet plus B.S. 9 mm.

S. Under control of Welfare Centre (thick knees).

D. Swollen hilus-glands, mother pulmonary tuberculosis, father protracted bronchitis.

H. Swelling of the hilus gland and tuberculosis in the mother's family.

V. Much coughing, strong pulmonary markings, calcareous foci.

O. The specialist for internal diseases considered, in view of the clinical picture of the blood, locally weak breathing, rhonchi, intensified pulmonary markings, old primary affections and severe hilus tuberculosis certainly possible.

Remarkable in the case of K is the origin of the change after tonsillectomy and in the case of W after mastoiditis, from which she had a running ear, whereas with three other patients the connection with bad teeth or a diseased mouth-cavity had to be considered (A, E and F).

Summarizing one can say, therefore, that there is a question here of a not very frequently occurring syndrome, at least one not often diagnosed, with a rather favourable prognosis*, characterized by and consequently feared because of a great inclination

* Ormond found as final vision an average of 6/36, Appleman 5/6, van der Hoeve 6/12 f. and the average of the cases cited here is 1/2-5/4; in drawing up a favourable prognosis some reserve should be made in cases of paramacular scotomata and of more serious affection of the anterior segment.

to recidivism, situated round and near the retinal vessels, mostly against or close to the papilla, sometimes attended with slight haemorrhages along these vessels, in which, also in the cicatrix, the vessels show a contracted and dented appearance, a change perhaps occurring slightly more in women, but certainly not seldom in men, preferably manifesting itself in the second and third decennium and the aetiology of which is not known with certainty, but may be different. Primarily the affection is situated in the innermost layer of the retina; in fresh condition it consists of a focus projecting inward into the vitreous humour up to 2½ mm. and perhaps more in other cases of exudative character including strings and turbidities; in part surely also caused by a cyclitis or irido-cyclitis sometimes arising later on, which may, however, also be lacking or at least be very slight. From the primary site the focus also extends outward into the deeper layers of the retina and the choroid. Characteristic is the sector, arch or paramacular limitation of the visual field attributable to destruction of neurofibrils. The affection occurs only at the earlier time of life. To finish up with a word about the name. Seeing this disease has as many as four names it seems bold to want to suggest another, which, in that case, might be " retinitis interna circumscripta."

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ANNOTATION

Fact and Fiction

Among the minor difficulties of war time, we cannot say "minor horrors," is that of providing comments on current ophthalmological literature, whether in abstract or in annotation. The first number of Vol. XXVI appears after more than two years of a gigantic world upheaval and it is not surprising that difficulties have arisen. We owe it to those contributors who have continued to send us papers that we have been able to appear with regularity each month. The British Journal of Ophthalmology started its career towards the end of the last great war. Some may have thought at the time that it was a risky procedure, but we weathered the storm and we believe that we shall be able to weather the present typhoon. It is with feelings of stedfast hope that we begin yet another volume.

In place of a set discourse on ophthalmological facts we hope we shall be pardoned if we stray into the region of ophthalmology in fiction. This is full of ophthalmological details, from the "irids," which seem to have been a favourite theme among the "Brontë Sisters," to Mr. Squeers's single eye. How many of these ocular details have stuck in one's mind from the mere verbal description it is difficult to say. Every reader of "Treasure Island" remembers Pew, who lost his deadlights by the same broadside that carried away Long John Silver's leg. The picture of the old scamp being knocked down by the rider of a horse has left as vivid a picture on the mind of the writer of this note as the description in the text. Stevenson seems to have been rather fond of introducing blind characters in his works for there is another example in the formidable blind catechist in "Kidnapped."

Another old friend of ours is MacGuffog in "Guy Mannering." In the text he had a "portentous squint of the left eye," but the illustration in the 1860 edition shows him with the squint in his right eye, a fact we only appreciated on re-reading the work recently.

The Reverend Mr. Platitude squinted with both eyes, if we can rely on George Borrow, perhaps he meant to indicate an alternating squint. If we think for a moment on the famous pugilistic accounts in fiction what a wealth of black eyes will rise to the imagination. "Smart chap that cabman, handled his fives well. Waiter, raw beef steak for the gentleman's eye," will occur to every one who has read Pickwick, while other classical fights are those of Tom Brown and Slogger Williams, Lavengro and the Flaming Tinman, Cuff and Dobbin down to the Smith's last fight in "Rodney Stone."

Was the obliquity observed in Tristram Shandy in setting up his top due to an ocular cause? And what are we to say of the imaginary foreign body in Widow Wadman's eye? "It did my Uncle Toby's business." Hereditary cases of squint are recorded in Lord Lytton's "Night and Morning," where Mrs. Plimmins, "who had a sad squint," transmitted the defect to each of her three children, causing her aunt to muse upon the mysteriousness of "natur."

Readers can multiply examples of ophthalmology in fiction to their heart's content; we will end these random jottings by asking a simple question. No prize is offered for a correct answer. Which of Commodore Trunnion's eyes was the blind one?

ABSTRACTS

MISCELLANEOUS

(1) **Klien, Bertha A. (Chicago).—Detachment of the pars ciliaris retinae. A contribution to the diagnosis of malignant intraocular tumours.** *Arch. of Ophthal.*, September, 1941.

(1) **Klien** draws attention to a sign which may be of considerable value in the differential diagnosis between simple and malignant detachment of the retina. The sign consists in detachment of the pars ciliaris retinae and it was present in about 50 per cent. of cases of sarcoma of the choroid and absent in all cases of simple detachment and in cases of Coats' disease. It was observed, however, in some cases of violent trauma to the eye. The detached pars ciliaris retinae may require careful examination for its discovery, and in some instances a contact lens has to be applied so as to allow of getting well out to the periphery. When seen, it appears as a delicate gray, smoothly rounded, avascular membrane, often showing fine wrinkles and bulging forward. The detachment is of a serous nature, produced by the increased pressure in the subretinal space brought about by the growth which itself may be well behind the equator of the eye.

F. A. W-N.

(2) **Klauder, Joseph V. (Philadelphia) and Vandoren, Eleanor (Washington, D.C.).—Interstitial keratitis. Analysis of five hundred and thirty-two cases with particular reference to standardization of treatment.** *Arch. of Ophthal.*, September, 1941.

(2) **Klauder** and **Vandoren's** paper is based on an analysis of the records of 532 patients with interstitial keratitis who were

treated or observed for at least a year. As a control, a group of 87 patients was taken of at least a year's duration who had received little or no treatment.

Onset of the disease occurred most frequently in females between the 7th and 13th years, whereas in males it developed at a fairly constant rate from the 5th to the 20th year. Of the 485 patients in whom the age of onset was known, the extremes were 3 years (13 cases) and over 30 (8 cases). Negative serological reactions were obtained in 30 per cent. of cases with inactive interstitial keratitis, but in only 25 per cent. of cases with active, untreated disease.

Other syphilitic manifestations comprised Hutchinson's teeth—40 per cent.; bone and joint involvement—35 per cent.; labyrinthine disease—10 per cent.; choroido-retinitis—8 per cent.; and neuro-syphilis—8 per cent. The treatment employed as a routine consisted of at least 20 injections of an arsenical (mainly arsphenamine and neo-arsphenamine) in conjunction with a heavy metal, bismuth being more popular than mercury. In cases of active disease, the average number of arsenical injections was 28 and of heavy metal injections, or weeks of inunction, 51. Most of the patients received potassium iodide by mouth, in doses ranging from 30 to 270 grains daily. In 127 patients fever therapy was employed, usually by giving typhoid vaccine intravenously. Local application of heat to the cornea by a thermophore was discarded as being valueless. Examination of visual end results showed that the best results were obtained by the use of an arsenical and heavy metal combined with induced fever. 51 per cent. of cases so treated had corrected vision of 6/6 or 6/9; 17 per cent. had 6/12 to 6/15; 22 per cent. had 6/20 to 6/60; while only 10 per cent. had less than 6/60. Of the untreated patients, only 24 per cent. had 6/6 or 6/9; 27 per cent. had 6/12 to 6/15; 37 per cent. had 6/20 to 6/60; and 12 per cent. less than 6/60.

F. A. W-N.

(3) **Raáb, C. M. (Budapest).—The treatment of eye tuberculosis with a new dye preparation.** *Ophthalmologica*, Vol. C, p. 1, 1940.

(3) **Raáb** draws attention to a series of publications on the use of rubrophen (a triphenylmethane dye) in extrapulmonary tuberculosis, stressing the several papers that have dealt with ocular tuberculosis. His own contribution deals with thirty cases consisting of eight cases of iritis and iridocyclitis, nine of acute and subacute chorioretinitis, four of episcleritis and scleritis, four of phlyctenular keratoconjunctivitis, four of retinal periphlebitis and one of lupus vulgaris of the face and left eye. He found it effective in about half the cases of iritis and iridocyclitis in practically all cases of

chorioretinitis and in most of the other conditions. Two of the four cases of periphlebitis did well and in the other two there seemed to be improvement. In the course of treatment focal reactions were observed in one third of the number of cases and improvements were most marked in those cases in which the lesion was due to tuberculo-toxin rather than to the organism. The dosage to be used depends upon the tuberculin-sensitivity of the patient. Treatment is commenced with one to two tablets daily (0·15—0·30 gr.) and increased by one tablet every other day until improvement is seen; focal reactions are the guide to change in dosage. The dye can also be given by injection. Chemically rubrophen is trimethoxy-dioxy-oxotritane.

ARNOLD SORSBY.

(4) **Adamantiadis, B. and Djacos, C. (Athens).—On a family with granular dystrophy of the cornea. (Sur une famille atteinte de dystrophie granuleuse de la cornee [Kératite de Groenouw]).** *Ophthalmologica*, Vol. C, p. 33, 1940.

(4) **Adamantiadis** and **Djacos** give a careful description and pedigree of a family affected with what was previously known as nodular keratitis (Groenouw keratitis, Hancock's keratitis). Inheritance was dominant and the characteristic snowflake white spots with fine granulated structure were seen by the slit-lamp to be situated on Bowman's membrane and in the anterior layers of the parenchyma localised to the pupillary area; the periphery and the corneal tissues between the nodules were clear. Corneal sensitivity was normal and there was no vascularisation. The eyes in all the patients were quiet and the course was relatively benign.

ARNOLD SORSBY.

(5) **Hessberg, R. (Lausanne).—The treatment of affections of the retinal vessels, particularly of venous thrombosis by X-ray. (Die Behandlung von Netzhautgefässerkrankungen besonders der Venenthrombose mit Röntgenstrahlen).** *Ophthalmologica*, Vol. C, p. 74, 1940.

(5) In an article which is largely a summary of the literature and an account of personal technique, **Hessberg** points out that X-ray treatment in haemorrhagic glaucoma frequently enables the eye to be saved from excision. Treatment consists of exposure to deeply penetrating rays, 100r being given at the first sitting, 50r five to ten days later and the same dose subsequently until improvement sets in. Such treatment should also be given at the earliest possible moment after the onset of thrombosis, when recovery of function may be expected. For thrombosis affecting a branch only, half the dose should be effective. X-ray treatment of retinal haemorrhage of non-thrombotic origin has proved beneficial. With the exception

of severe haemorrhage following injury or an operation X-ray treatment is only to be considered when other forms of treatment have proved of no avail, but it is not advisable in cases of juvenile retinal and vitreous haemorrhage.

"X-rays are effective on the sympathetic nerve net from which the effect is carried over to the vascular apparatus. The small stimulus doses are intended to have a vasodilatation effect, which produces and furthers absorption. The large doses are for the purpose of vasoconstriction in order to bring about quiescence and final obliteration of the vessels."

ARNOLD SORSBY.

(6) **Burki, E. (Basle).—Ultra short wave therapy in ophthalmology. (Ueber Ultrakurzwellentherapie in der Ophthalmologie).** *Ophthalmologica*, Vol. C, p. 43, 1940.

(6) **Burki** gives a critical survey of the literature and notes that in 124 cases of various type satisfactory results are reported. He finds it difficult to assess these results, particularly as his own studies in 144 cases show little to indicate that ultra short wave therapy is superior to the more usual methods of treatment by heat. He agrees with other observers that ultra short wave therapy is not deleterious and, from the survey of his material (which included most of the common anterior and posterior segment affections of the eye), he concludes that only in acute suppurating inflammation of the adnexa has such treatment led to shortening of the time necessary for cure. The author can see no place for ultra short wave therapy in ophthalmology.

ARNOLD SORSBY.

(7) **Cardell, J. D. M. (London).—Perforating injuries of the eye.** *Med. Press and Circular*, October 1, 1941.

(7) This is the eighth article of a second series on "War Medicine and Surgery" in "Modern Treatment in General Practice" which is being issued in the pages of the Medical Press and Circular. **Cardell** has covered the ground thoroughly and supplies the general practitioner, who may be called upon in the first instance in such cases, with just what he wants. Simple diagrams illustrate the various points and there are a number of useful 'tips.' Altogether an admirable article.

R. R. J.

(8) **Dandy, Walter E. (Baltimore).—The surgical treatment of intracranial aneurysms of the internal carotid artery.** *Ann. of Surgery*, September, 1941.

(8) **Dandy's** paper, which is quite short, was read before the American Surgical Association in April, 1941. He divides intracranial aneurysms into three types: (1) congenital, comprising

about 80 per cent. of the entire number; (2) arteriosclerotic (about 15 per cent.); and mycotic (about 5 per cent.). The rôle of syphilis in their production, "contrary to a very prevalent opinion," is none or almost none. The third type, occurring in a terminal phase of endocarditis, offers no opportunity for surgery. "Arteriosclerotic aneurysms offer returns from surgery," but it is principally with the congenital aneurysms that surgery has a place in treatment. Such aneurysms are usually silent until rupture occurs. The immediate result of haemorrhage depends to a large extent upon the presence or absence of opposing tissue at the site of rupture. Bleeding into the cisternae is almost invariably fatal very rapidly. But if the bleeding is into cerebral substance, it may be controlled, and a "large progressive false aneurysmal sac will form, and in time, by gradual expansion, give signs and symptoms like those of a brain tumour."

"The great deterrent to operative intervention in subarachnoid haemorrhage is the inability to localize the aneurysm by symptoms and signs."

The author has analysed 103 cases from the records of the Johns Hopkins Hospital. In most of the aneurysms of the middle cerebral artery there was hemiplegia. Some aneurysms of the anterior cerebral give a partial hemiplegia or Babinsky. "These are amenable to treatment, although none as yet have been cured." "It is the silent aneurysms, with few or no signs and symptoms arising from the internal carotids and the circle of Willis, that offer the maximum from prompt surgical treatment."

The only useful symptom in detecting the side of the lesion is an unilateral headache, or pain in one eye. "A positive Babinsky may at times betray the side of the lesion; but by far the most important sign of all is weakness of a third nerve." "Intra-arterial injections of thorotrast have for some time been used to define aneurysms and with remarkable results." We gather that these are not always free from danger and the author emphasises that they should be employed with caution and discrimination.

Thirteen intracranial aneurysms of the internal carotid have been operated on; all diagnosed by third nerve palsy, plus sharp, severe, sudden pains in the eye and corresponding side of the head. Six of them arose in the carotid canal; five are cured, the longest 4½ years. Seven arose from the artery intracranially, before the anterior cerebral is given off; five of these are cured, two have died.

The cures in this series are 77 per cent. the mortality 23 per cent.

Dr. Grant, of Philadelphia, and Dr. Horrax, of Boston, joined in the discussion on this paper, and each stressed its importance.

R. R. J.

BOOK NOTICE

Medicine and Mankind. By ARNOLD SORSBY. 8vo., 236 pp. with 72 illustrations. London: Faber and Faber. 1941. Price, 12/6.

Sorsby is to be congratulated on this book in which he gives us a broad account of the aims of modern medicine, the various conceptions which have ruled the art in the past, together with current ideas on disease and the rationale of treatment. It is a book that will be appreciated not only by the profession but also by the educated layman. It is very well written and all technical terms, which may not be familiar to the lay mind, are explained in brackets. There is a good glossary and a comprehensive index. We have found it most readable and extremely interesting. Of the ten chapters composing it the first is headed "health," the second, "health and disease." Chapters 3 to 6 deal with disease under such titles as "the ill-formed body," "the ill-balanced body," "the abused body" and "the assaulted body." The 7th and 8th chapters are concerned with individual and collective measures of treatment and the 9th with social achievements and social frustrations. The last chapter is headed "on the horizon of time." Commenting here and there we find that in dealing with racial inheritance the author says: "If man's racial inheritance makes him a man, a flaw in the title-deeds may make him less than a man . . . parental legacy operates in two ways in the moulding of the individual. In the first place the individual at the stage of fertilization of the ovum derives inherited characteristics—good, bad, and neutral—from both his parents. Secondly, during his period of development from ovum to birth he lives in the secluded environment of his mother's womb and is liable to an endless series of influences deriving from his mother."

Mr. Walter Shandy's sorrowful declaration that Tristram's troubles began nine months before he came into this world had more truth in it than he was aware of.

The picture of the child with progeria sent us back in fancy to Gilbert's enfeebled old dotard of five. And then we got wondering why those preliminary nine months were never accounted for in a person's age? It is hard lines on one who dies 6 months before his hundredth birthday that he may not call himself a centenarian.

It would be of great value if pedigrees of disease could be drawn up with fidelity for each family in the land; but this idea is Utopian. It couldn't be done. If one looks back among one's own ancestors one may have a fairly accurate idea as to the nature of the disease which accounted for one's parents and perhaps one's grandparents, but beyond this all is dim. Post-mortem examination would have to be the rule rather than the exception to make such a

record of any real value. And some people would be rather shy of acknowledging that any of their ancestors had been addicted to an immoderate consumption of alcohol. But this is a digression.

The chapter on the social achievements and frustrations should be of real value to the public.

The book is well produced, paper, print and illustrations are all good and we only noticed a single misprint. As this struck us as rather an amusing one we hope that the author will pardon our noticing it. On page 145, what we think should have been "acholuric" jaundice appears as "alcoholic" jaundice. If we are wrong and the jaundice really is alcoholic we will beg pardon, but we note that it is given its more sober title in the index.

CORRESPONDENCE

OPHTHALMOLOGICAL "NOTES AND QUERIES."

To the Editors of THE BRITISH JOURNAL OF OPHTHALMOLOGY.

DEAR SIRS.—The usefulness of your Journal could be greatly extended, in my opinion, by reserving a portion for "Queries and Answers" similar to that in the *British Medical Journal*. It would afford an opportunity for "the strong to help the weak" and make interesting reading for all of us.

In addition to this the recording of interesting cases in our every-day work should be encouraged. Such records, though brief, would be very valuable for future reference.

These two additions to your Journal would help to meet the justifiable plea made for more clinical articles by one of your readers a few months ago.

Yours faithfully,

FRANCIS E. PRESTON.

WOODTHORPE,
ST. MARY'S AVENUE,
WANSTEAD.
November 19, 1941.

THE CAUSATION OF "RETROBULBAR NEURITIS"

To the Editors of THE BRITISH JOURNAL OF OPHTHALMOLOGY.

DEAR SIRS.—In a paper on Retrobulbar Neuritis and Peripheral Neuritis in the December number of the Journal the following

sentences occur on p. 560 :—" As regards retrobulbar neuritis, this is generally recognised to be due to both tobacco and alcohol. Traquair, however, states that in Britain tobacco is the only factor concerned in the aetiology and that alcohol merely depresses the health." It is evident that what the writer means by the term " retrobulbar neuritis " is the condition also known as chronic toxic amblyopia or tobacco amblyopia or tobacco-alcohol amblyopia. This interpretation may, however, not be obvious to anyone not familiar with the subject, and it might be thought that I had expressed the opinion that in Great Britain tobacco is the only cause of retrobulbar neuritis, which is what the statement means if taken literally. In order to avoid misunderstanding I would like to make it clear that I have never expressed any such opinion. In the reference given (*Edinburgh Medical Journal*, Vol. XLII, p. 153), the disease referred to is termed " Tobacco Amblyopia." The words " retrobulbar neuritis " do not occur in the paper and it is pointed out that there is no conclusive evidence that " Tobacco Amblyopia " is due to disease originating in the optic nerve. On the question of causation the opinion given, to which I adhere, is that in Great Britain alcohol plays no direct part in the production of the condition known as Tobacco Amblyopia. That " tobacco-alcohol " amblyopia may occur in other countries is mentioned.

Among the reasons for this view are the following :—In 1887 the question was studied by the Ophthalmological Society of the United Kingdom. The report was against any direct causative action of alcohol.

" No authenticated instance " (of amblyopia due to alcohol) was reported by the departmental committee on the causes and prevention of blindness, Ministry of Health, 1922.

Although there are many dipsomaniacs in institutions in this country no cases of amblyopia in this connection are reported.

In hospital practice, in which tobacco amblyopia is common, the patients do not come from the section of the population in which hard drinking by both sexes, often supported by cheap alcohol, is frequent. These people come to the medical and surgical out-patient departments and exhibit the clinical picture of chronic alcoholism; they do not come to the eye department complaining of impaired vision. If alcohol were an important factor toxic amblyopia would be much more common in women than it is. Tobacco amblyopes are frequently moderate or light drinkers and are often teetotallers.

No case, which exhibited the features of tobacco amblyopia, has been reported in a patient of either sex whether alcoholic or not who did not use tobacco.

There is no evidence to show that either ethyl or methyl alcohol, if pure, produces amblyopia. Where loss of vision has followed the

consumption of alcohol, it has been caused not by the alcohol itself but by the presence of toxic impurities such as are contained in wood spirit.

The clinical picture of tobacco amblyopia both as regards the changes in the field of vision and its general features is very uniform and characteristic. It differs in many respects from that of alcoholism. The patient's resistance is an important factor in determining both the onset of and the recovery from the amblyopia. A relative avitaminosis which itself may be due to alcoholism, may well be of influence in this connection in certain cases, and if the accessory factors are removed or corrected the amblyopia may be relieved even though tobacco is continued.

Yours truly,

H. M. TRAQUAIR.

16, MANOR PLACE, EDINBURGH, 3,
December 10, 1941.

NOTES

Death

AS we go to press we note with great regret the announcement of the death, on December 19, 1941, of Mr. Percy Flemming. We hope to include an obituary notice of him in our next number.

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Special Notice

WE are asked by the Ministry of Information to state that the fact that goods made of raw materials in short supply owing to war conditions are advertised in this journal should not be taken as an indication that they are necessarily available for export.